
FREEMANN LAW OFFICES
A PROFESSIONAL CORPORATION
Scott Bennett Freemann
2401 Walnut Street, Suite 302
Philadelphia, PA 19103
(215) 564-7400

CARLSON, GASKEY & OLDS, P.C.
Steven Susser
To seek pro hac vice admittance
400 West Maple Road, Suite 350
Birmingham, MI 48009
(248) 988-8360

Counsel for Plaintiff

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY**

THE GREEN PET SHOP ENTERPRISES, LLC,
an Illinois limited liability company,

Plaintiff

Case No.:

v.

C&A MARKETING, INC. d/b/a C+A GLOBAL,
A New Jersey Corporation,

Defendant.

COMPLAINT AND JURY DEMAND

NOW COMES Plaintiff The Green Pet Shop Enterprises, LLC (“Green Pet Shop”), by and through its attorneys, Freemann Law Offices A Professional Corporation and Carlson, Gaskey & Olds, P.C., and for its Complaint against Defendant C&A Marketing, Inc. d/b/a C+A Global (“C+A”) states as follows:

NATURE OF THE ACTION

1. This is a civil action for infringement of United States Patent Nos. 8,720,218 (the “218 Patent”) and 9,226,474 (the “474 Patent”)(collectively, the “Green Pet Shop Patents”).

THE PARTIES

2. Plaintiff Green Pet Shop, an Illinois limited liability company having a place of business at 770 Lake-Cook Rd., Suite 120, Deerfield, Illinois 60015, manufactures and brings to market high quality, unique, and eco-friendly pet products.

3. On information and belief, Defendant C+A is a New Jersey business corporation having a principal place of business located at 114 Tived Lane East, Edison, New Jersey 08837.

JURISDICTION AND VENUE

4. This action arises under the patent laws of the United States, e.g., 35 U.S.C. §§ 1 et seq., 271, 281, 283-285.

5. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Defendant is subject to personal jurisdiction in this Court. In particular, this Court has personal jurisdiction over Defendant because, upon

information and belief, it has engaged in continuous, systematic and substantial activities within this judicial district, including the marketing and sales of products in this judicial district. Furthermore, upon information and belief, this Court has personal jurisdiction over Defendant in this case because it has committed acts giving rise to Green Pet Shop's claims within and directed to this judicial district.

7. Venue is proper in this Court under 28 U.S.C. §1391(b) and (c) and 28 U.S.C. §1400(b)

FACTUAL BACKGROUND

A. Patents In Suit

8. The '218 Patent is called "Pressure Activated Recharging Cooling Platform" and relates to cooling platforms for a variety of uses, including for pets. The inventor of the '218 Patent is Gerard E. Prendergast. The '218 Patent was filed on April 14, 2010. On May 13, 2014, the United States Patent and Trademark Office issued the '218 Patent.

9. The application leading to the '218 Patent was assigned to Green Pet Shop on February 9, 2012. Green Pet Shop is the lawful owner by assignment of all rights, title and interest in and to the '218 Patent and possesses all rights of recovery under the '218 Patent, and has standing to sue for infringement of the '218 Patent. A true and correct copy of the '218 Patent is attached hereto as Exhibit "1".

10. The ‘218 Patent is valid and enforceable.

11. The ‘474 Patent is called “Pressure Activated Recharging Cooling Platform” and relates to cooling platforms for a variety of uses, including for pets. The inventor of the ‘474 Patent is Gerard E. Prendergast. The ‘474 Patent is a continuation of the ‘218 Patent and was filed on March 26, 2014. On January 5, 2016, the United States Patent and Trademark Office issued the 474 Patent.

12. The application leading to the ‘474 Patent was assigned to Green Pet Shop on February 9, 2012. Green Pet Shop is the lawful owner by assignment of all rights, title and interest in and to the ‘474 Patent and possesses all rights of recovery under the ‘474 Patent, and has standing to sue for infringement of the ‘474 Patent. A true and correct copy of the ‘474 Patent is attached hereto as Exhibit “2”.

13. The ‘474 Patent is valid and enforceable.

B. Accused Product

14. C+A makes, imports into the United States, offers for sale, sells, and/or uses in the United States pet products, including, without limitation, a pet bed such as the Arf Pets Cooling Mat (“Accused Product”). *See* Exhibit “3”. C+A’s infringement may include additional products, services and technologies (to be determined in discovery).

15. The Accused Product infringe at least claims 15 and 16 of the

‘218 Patent and claims 1, 4, 5, 11, and 16-21 of the ‘474 Patent.

C. Notice of Infringement

16. On May 4, 2017, counsel for Green Pet Shop notified C+A that its Accused Product[s] infringed one or more claims of the ‘218 and ‘474 Patents.

17. C+A has continued to manufacture, import and offer for sale the Accused Product.

D. Green Pet Shop Commercial Embodiment

18. Green Pet Shop sells a product called “Cool Pet Pad.” The Cool Pet Pad is covered by the ‘218 and ‘474 Patents. Green Pet Shop began marking its Cool Pet Pad product with one or both of its patent numbers no later than 2014.

E. Prior Litigation

19. Green Pet Shop has already litigated to judgment a patent infringement lawsuit against a seller of cooling pads for pets called Maze Innovations, Inc. (Case No. 15-cv-1138) in the Northern District of Illinois.

20. During that lawsuit, Maze petitioned for an inter partes review based on the allegation that the Green Pet Shop Patents were invalid. The United States Patent and Trademark office rejected that petition and refused to institute a review of the Green Pet Shop Patents.

21. Also during that lawsuit, Maze argued for a construction of certain claims of the ‘218 and ‘474 Patents that it believed would allow it to avoid a finding

of infringement. The Judge presiding over that case issued a claim construction decision that rejected Maze's attempted construction and adopted Green Pet Shop's proposed construction.

22. After the rejection of its inter partes review petition and its proposed claim constructions, Maze settled that lawsuit and admitted that the Green Shop Patents were valid and infringed.

23. Before it filed this Complaint, Green Pet Shop informed C+A about the Maze lawsuit, including the information set forth in Paragraphs 19-22 above.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 8,720,218

24. Green Pet Shop incorporates each of the preceding paragraphs as if fully set forth herein.

25. C+A has been and is now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalence, the '218 Patent in this District and elsewhere by making, using, offering for sale, importing, and/or selling products that fall within the scope of at least one claim of the '218 Patent without license or authorization. Such acts constitute infringement under at least 35 U.S.C. § 271 (a), (b) and (c).

26. Upon information and belief, C+A has been aware of the '218 Patent since at least approximately July 17, 2012, when the '218 Patent was first published

by the United States Patent and Trademark Office. C+A has been aware of the '218 Patent since May 4, 2017, when a notice of infringement was sent to C+A on behalf of Green Pet Shop. C+A denied infringement without a plausible basis for that denial. C+A's infringement has therefore been reckless, without objective basis, and willful.

27. Upon information and belief, C+A has also knowingly and intentionally actively aided, abetted and induced others to infringe (such as its customers and/or business partners in this judicial district and throughout the United States). C+A has also knowingly contributed to infringement, within the meaning of 35 U.S.C. § 271(c), by among other things providing pet products that are not a staple article of commerce capable of substantial non-infringing use.

28. As a direct and proximate consequence of the infringement, Green Pet Shop has been, is being and, unless such acts and practices are enjoined by the Court, will continue to be injured in its business and property rights, and has suffered, is suffering, and will continue to suffer injury and damages for which it is entitled to relief under 35 U.S.C. § 284 adequate to compensate for such infringement, but in no event less than a reasonable royalty.

29. Green Pet Shop is entitled to recover from C+A the damages sustained by Green Pet Shop as a result of C+A's wrongful acts in an amount subject to proof at trial.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 9,226,474

30. Green Pet Shop incorporates each of the preceding paragraphs as if fully set forth herein.

31. C+A has been and is now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalence, the '474 Patent in this District and elsewhere by making, using, offering for sale, importing, and/or selling products that fall within the scope of at least one claim of the '474 Patent without license or authorization. Such acts constitute infringement under at least 35 U.S.C. § 271 (a), (b) and (c).

32. Upon information and belief, C+A has been aware of the '474 Patent since at least approximately January 5, 2016, when the '474 Patent was first published by the United States Patent and Trademark Office. C+A has been aware of the '474 Patent since June 15, 2017, when a notice of infringement was sent to C+A on behalf of Green Pet Shop. C+A denied infringement without a plausible basis for that denial. C+A's infringement has therefore been reckless, without objective basis, and willful.

33. Upon information and belief, C+A has also knowingly and intentionally actively aided, abetted and induced others (such as its customers and/or business partners in this judicial district and throughout the United States)

to infringe the '474 Patent. C+A has also knowingly contributed to infringement, within the meaning of 35 U.S.C. § 271(c), by among other things providing pet products, which are not a staple article of commerce capable of substantial non-infringing use.

34. As a direct and proximate consequence of the infringement, Green Pet Shop has been, is being and, unless such acts and practices are enjoined by the Court, will continue to be injured in its business and property rights, and has suffered, is suffering, and will continue to suffer injury and damages for which it is entitled to relief under 35 U.S.C. § 284 adequate to compensate for such infringement, but in no event less than a reasonable royalty.

35. Green Pet Shop is entitled to recover from C+A the damages sustained by Green Pet Shop as a result of C+A's wrongful acts in an amount subject to proof at trial.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Green Pet Shop asks this Court to enter judgment against C+A and against its respective subsidiaries, affiliates, agents, servants, employees and all persons in active concert or participation with them, granting the following relief:

- A. An adjudication that C+A has infringed one or more of the claims of the '218 and '474 Patents.
- B. The ascertainment of and award to Green Pet Shop of actual and treble damages from the infringement of one or more claims of the '218 and '474 Patents, together with prejudgment and post-judgment interest pursuant to 35 U.S.C. § 284.
- C. A finding that this case is exceptional and the award of reasonable attorneys' fees, costs, and expenses in this action to Green Pet Shop, pursuant to 35 U.S.C. § 285.
- D. The issuance of a preliminary and/or permanent injunction prohibiting further infringement, inducement and contributory infringement of the Green Pet Shop Patents pursuant to 35 U.S.C. § 283.
- E. An order requiring that C+A account for all gains, profits, and advantages derived by its infringement of the '218 and '474 Patents in violation of 35 U.S.C. § 271, and that C+A pay to Green Pet Shop all damages suffered by Green Pet Shop.
- F. Such other and further relief as this Court or a jury may deem proper and just.

JURY DEMAND

Pursuant to Fed. R. Civ. P. 38(b) and 5(d), Green Pet Shop demands a trial by jury on all issues so triable.

Respectfully submitted,

**FREEMANN LAW OFFICES
A PROFESSIONAL CORPORATION**

By: /s/ Scott Bennett Freemann
Scott Bennett Freemann
2401 Walnut Street, Suite 302
Philadelphia, PA 19103
(215) 564-7400

CARLSON, GASKEY & OLDS, P.C.
Steven Susser
To seek pro hac vice admittance
400 W. Maple, Suite 350
Birmingham, Michigan 48009
(248) 988-8360

EXHIBIT “1”



US008720218B2

(12) **United States Patent**
Prendergast

(10) **Patent No.:** **US 8,720,218 B2**
(45) **Date of Patent:** **May 13, 2014**

(54) **PRESSURE ACTIVATED RECHARGING COOLING PLATFORM**

(75) Inventor: **Gerard E. Prendergast**, Chicago, IL (US)

(73) Assignee: **The Green Pet Shop Enterprises, LLC**, Northbrook, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1064 days.

(21) Appl. No.: **12/760,045**

(22) Filed: **Apr. 14, 2010**

(65) **Prior Publication Data**

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(51) **Int. Cl.**
F25D 23/12 (2006.01)
F25D 3/08 (2006.01)
F25D 3/10 (2006.01)

(52) **U.S. Cl.**
USPC **62/259.3**; 62/529; 62/457.2

(58) **Field of Classification Search**
USPC 62/259.3, 457.2, 529
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,064,835 A * 12/1977 Rabenbauer 119/28.5
4,311,022 A * 1/1982 Hall 62/457.2
4,821,354 A * 4/1989 Little 5/422
D379,730 S * 6/1997 Dickman D6/608
5,991,948 A * 11/1999 Stanley et al. 5/709

6,132,455 A * 10/2000 Shang 607/108
6,210,427 B1 * 4/2001 Augustine et al. 607/96
6,708,646 B1 * 3/2004 Wang 119/28.5
7,021,848 B1 * 4/2006 Gruenbacher et al. 401/1
7,028,344 B2 * 4/2006 Toth 2/413
7,036,162 B1 * 5/2006 Gatten 5/421
8,011,194 B2 * 9/2011 Dimmitt 62/115
2009/0084320 A1 * 4/2009 Reusche et al. 119/28.5

OTHER PUBLICATIONS

Omidian et al., Sep. 15, 2006, Macromolecular Bioscience, vol. 6, issue 9, 703-710.*

* cited by examiner

Primary Examiner — Allen Flanigan

Assistant Examiner — Filip Zec

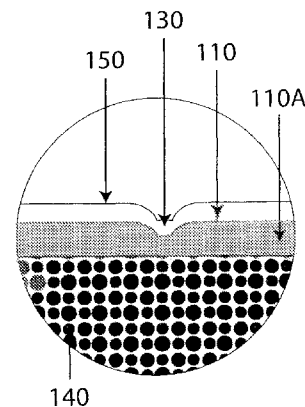
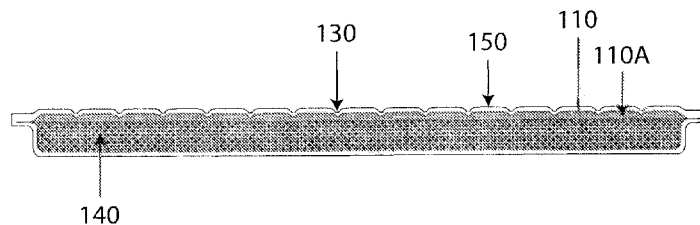
(74) *Attorney, Agent, or Firm* — Musick Peeler, LLP; Reid Dammann

(57) **ABSTRACT**

A cooling platform for cooling an object is provided. The cooling platform comprises a temperature regulation, a support layer, and a channeled covering layer. The temperature regulation layer is adapted to hold a composition. The temperature regulation layer has a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance. The support layer is substantially bonded to the bottom side of the temperature regulation layer and is comprised of material sufficiently pliable to deform and sufficiently rigid to withstand collapse in response to the weight of the object. The channeled covering layer encompasses the support and temperature regulation layers.

20 Claims, 7 Drawing Sheets

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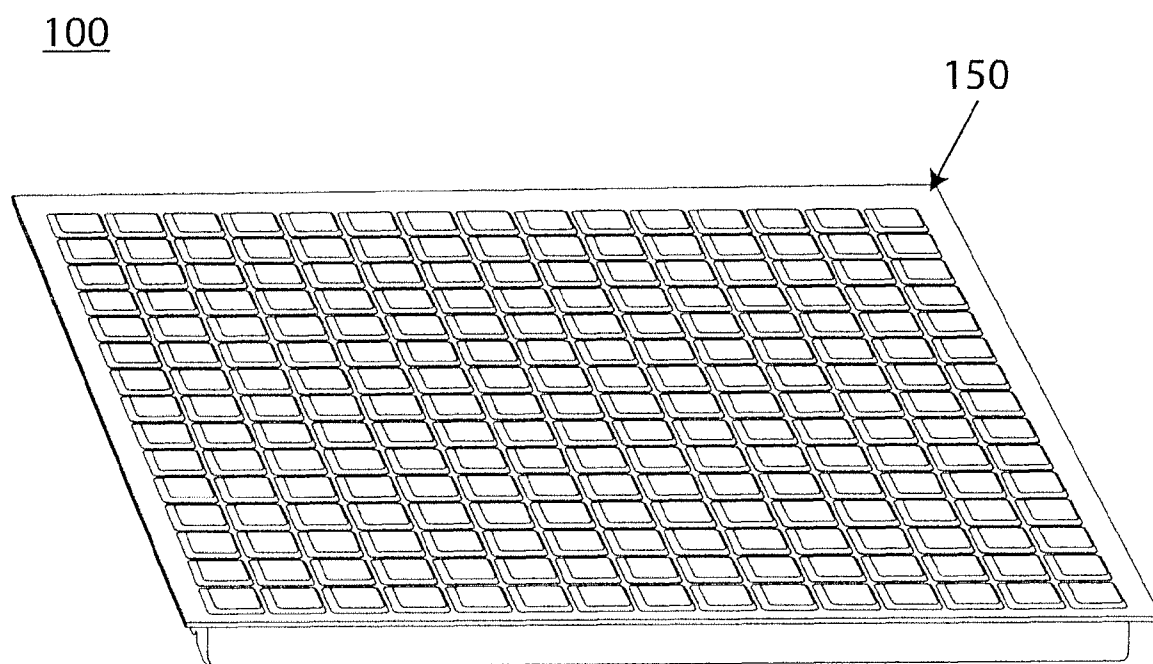


Fig. 1

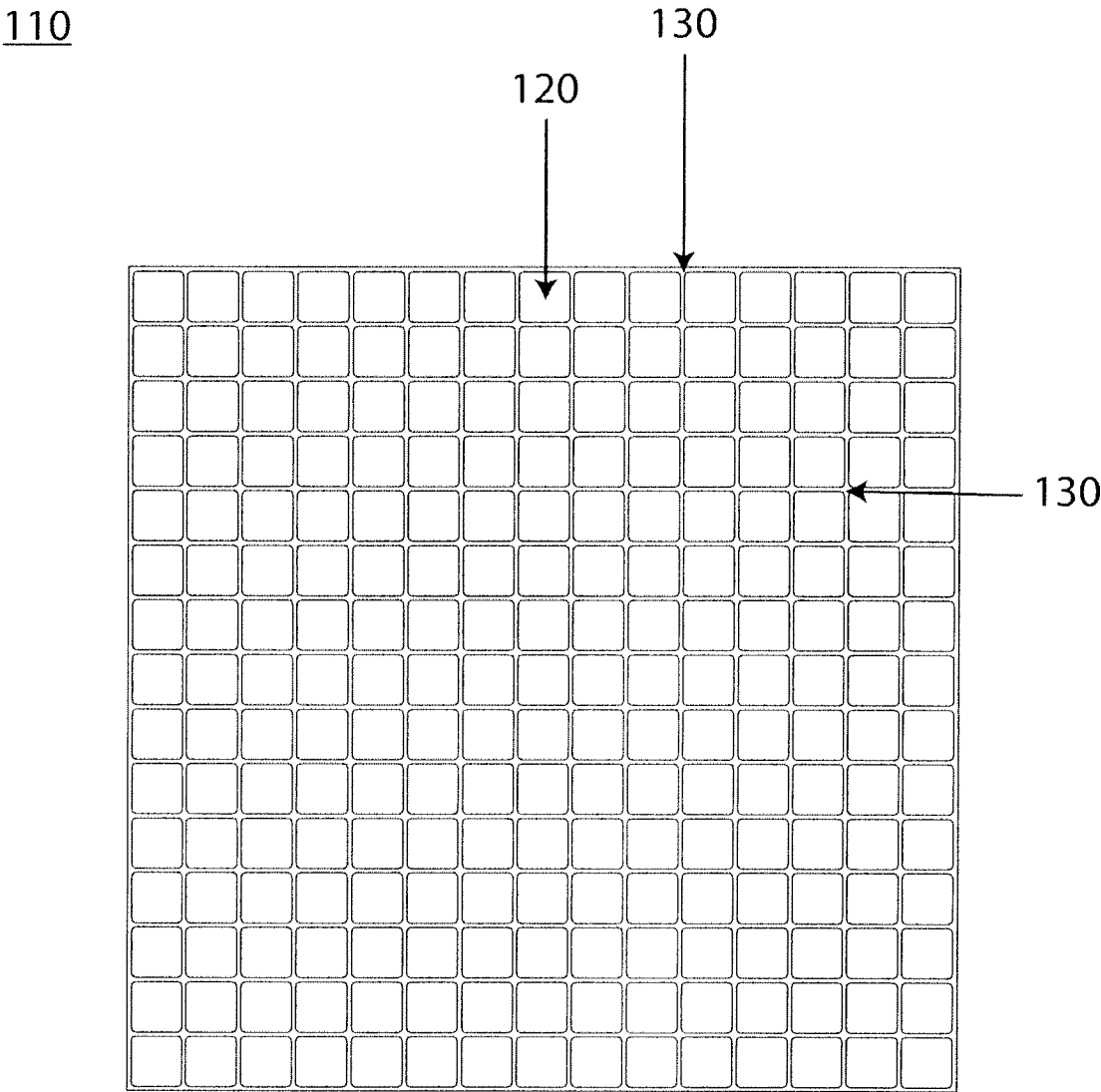


Fig. 2

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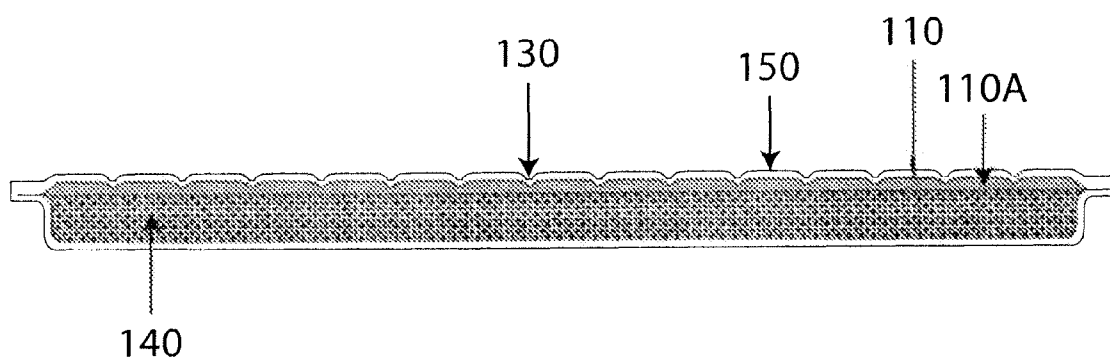


Fig. 3

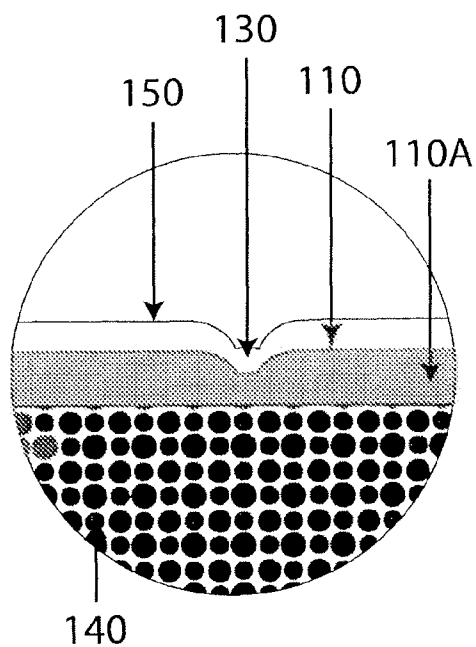


Fig. 4

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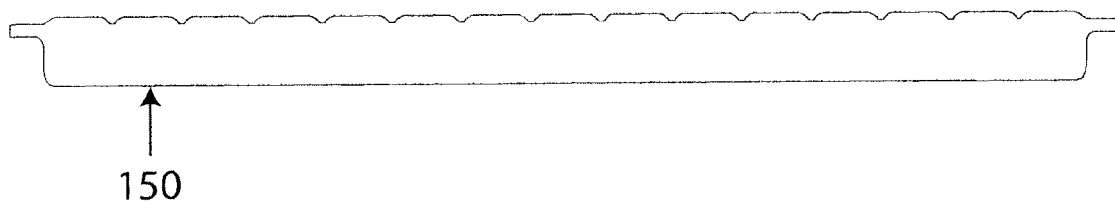


Fig. 5

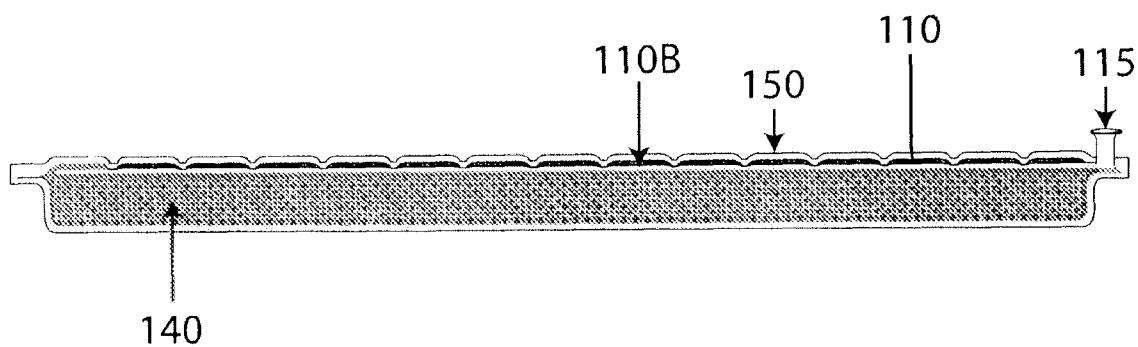


Fig. 6

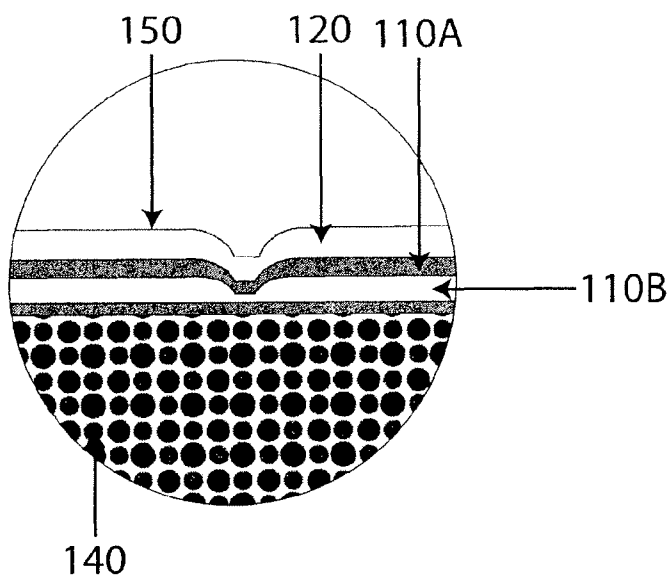


Fig. 7

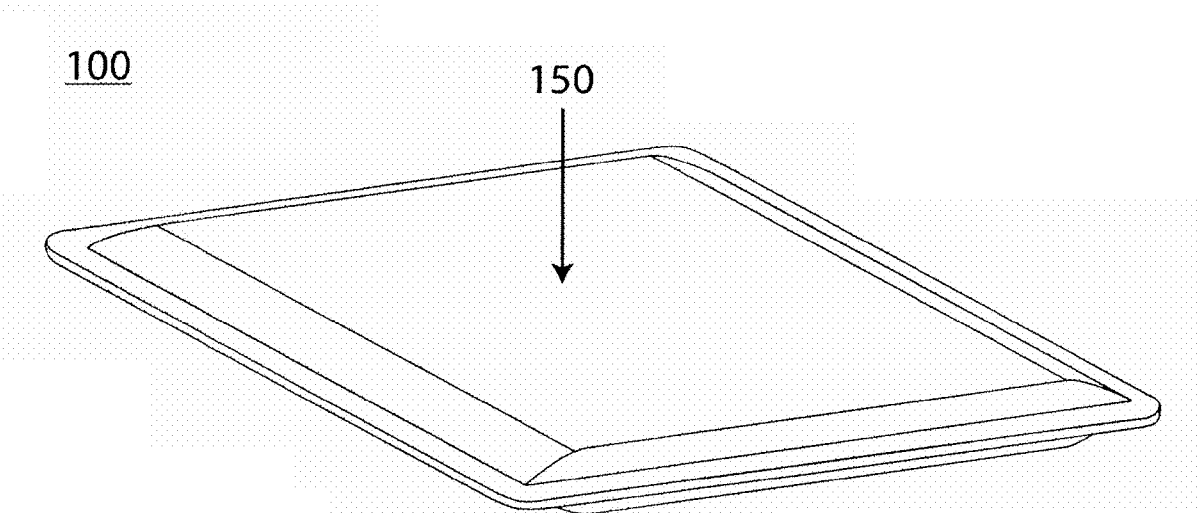


Fig. 8

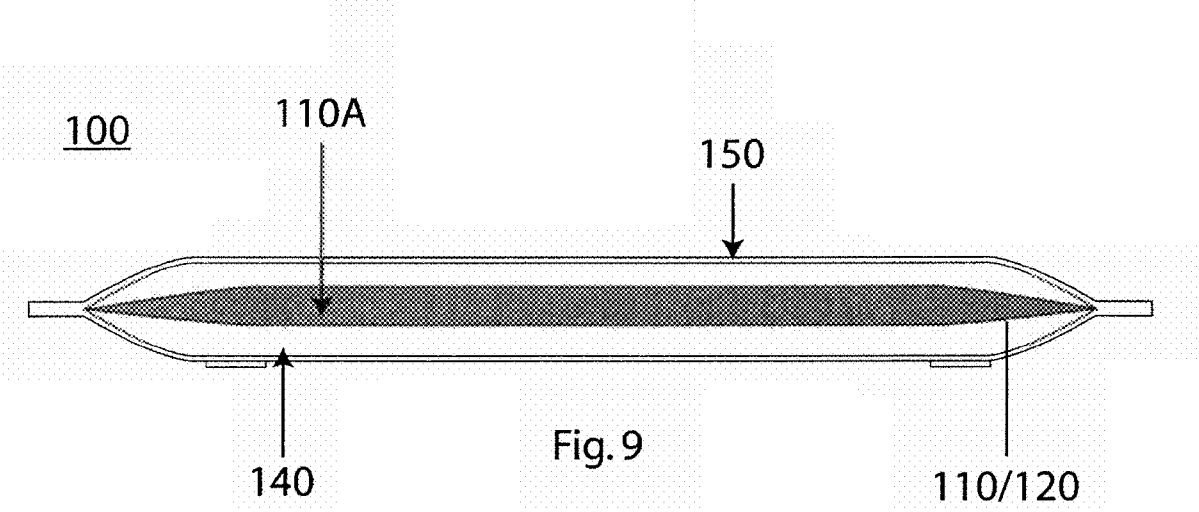


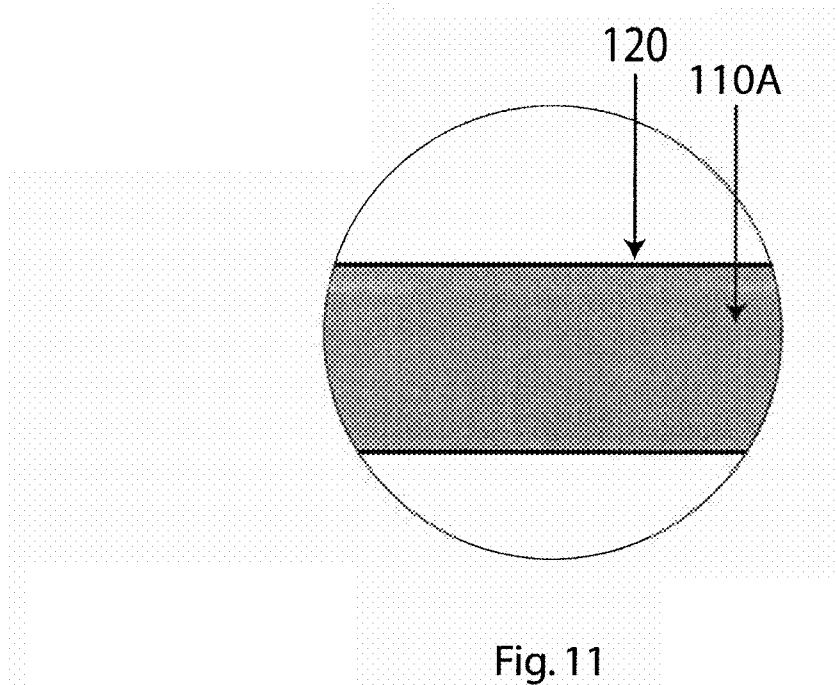
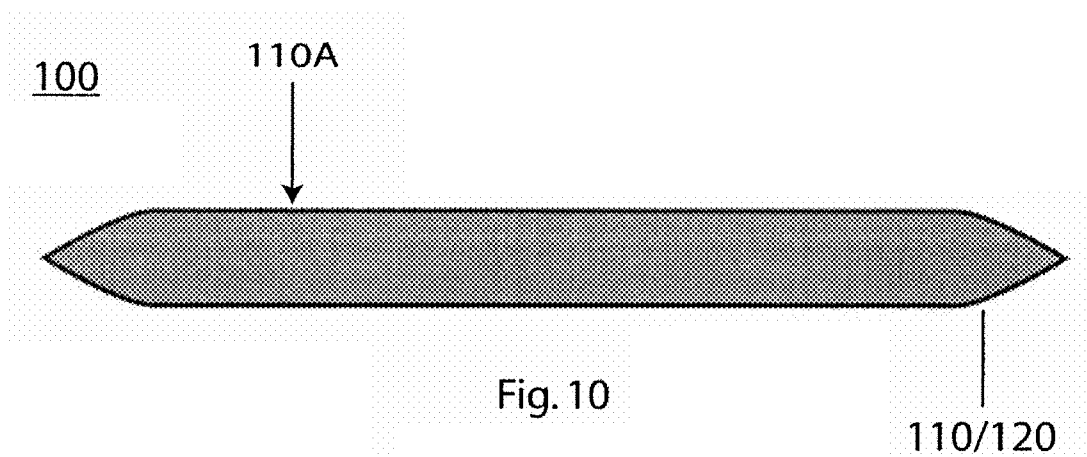
Fig. 9

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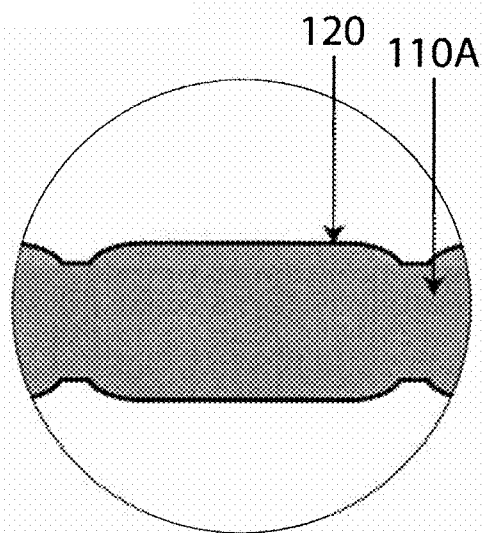
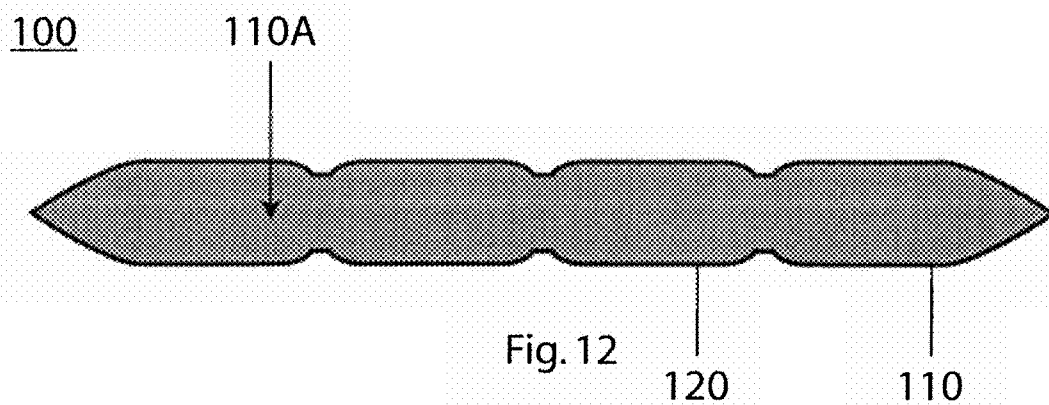


Fig. 13

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PRESSURE ACTIVATED RECHARGING COOLING PLATFORM

BACKGROUND

1) Field of the Invention

The invention relates to temperature controlled platforms, particularly, cooling platforms for animals.

2) Discussion of the Related Art

Pet beds serve as a place to rest or sleep, for pets such as cats and dogs. Many times, depending on the application, these pet beds are directed towards cooling or heating pets. These beds can be used during post-surgery recovery, dysplasia, or post-chemotherapy. Generally, these pet beds aid in the comfort and safety of the pet.

Many pet beds are known to have cooling mechanisms. Some pet beds provide a centralized cooling plate with no mechanism to circulate. These pet beds are electrically connected to a power source. Power sources often times fail, negating the “portable” aspect of a product. Further, such systems require heavy and complex equipment, and are not typically portable or user friendly.

There are other pet beds available which use alternative or “non-electric” means to cool a pet. These pet beds generally use ice packs. However, these ice packs eventually melt and need to be replaced. Accordingly, it is desirable to provide an improved cooling bed for pets.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described by way of example with reference to the accompanying drawings wherein:

FIG. 1 illustrates a top angled perspective of a cooling platform.

FIG. 2 illustrates a top view of a temperature regulation layer of the cooling platform.

FIG. 3 illustrates a cross-sectional view of the cooling platform.

FIG. 4 illustrates a detailed cross-sectional view of the cooling platform.

FIG. 5 illustrates a cross-sectional view of a channeled covering layer of the cooling platform.

FIG. 6 illustrates a detailed cross-sectional view of an alternative embodiment of the cooling platform.

FIG. 7 illustrates a detailed cross-sectional view of the alternative embodiment of the cooling platform.

FIG. 8 illustrates a top angled perspective of an alternative embodiment of the cooling platform.

FIG. 9 illustrates a cross-sectional perspective of the alternative embodiment of the cooling platform.

FIG. 10 illustrates a cross-sectional perspective of an alternative embodiment of the cooling platform.

FIG. 11 illustrates a detailed cross-sectional view of the alternative embodiment of the cooling platform.

FIG. 12 illustrates a cross-sectional perspective of an alternative embodiment of the cooling platform.

FIG. 13 illustrates a detailed cross-sectional view of the alternative embodiment of the cooling platform.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is now described with reference to figures where like reference numbers indicate identical or functionally similar elements. While specific configurations and arrangements are discussed, it should be understood that this is done for illustrative purposes only. A person skilled in

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the relevant art will recognize that other configurations and arrangements can be used without departing from the spirit and scope of the invention.

The invention described herein is multilayered. Each layer, in an embodiment, is bonded to the next layer in some fashion, in that, each layer is comprised of a first and a second side and is bonded to the respective side accordingly. As such, the term “bonded” refers to the joining, adhering, affixing, connecting, attaching, threading or the like, through chemical, mechanical or electrical avenues, of at least two elements of a cooling platform, such that the elements tend to be and remain bonded during normal use conditions of the cooling platform.

FIG. 1 illustrates a cooling platform 100. The cooling platform 100 is comprised of a temperature regulation layer 110 (illustrated in FIG. 2), a support layer 140 (illustrated in FIG. 3), and a channeled covering layer 150.

FIG. 2 illustrates the temperature regulation layer 110 in more detail. The temperature regulation layer 110 is adapted to hold a composition 110A (illustrated in FIG. 3) and provides temperature regulation to the cooling platform 100. The temperature regulation layer 110 has an angled segment 120, which includes a top side and a bottom side (illustrated FIG. 8 and FIG. 9). The angled segment 120 is formed by channels 130 and includes a sealed perimeter.

In an embodiment, and as illustrated in FIG. 2, the temperature regulation layer 110 includes a plurality of angled segments 120 formed by a plurality of channels 130. The channels 130 effectively space the top and bottom sides of each angled segment 120 at a predefined distance. In an embodiment, the predefined distance can equal zero, thus completely forming each angled segment 120 and cutting off any interconnection or communication therein.

In another embodiment, that predefined distance can be measured depending on the object using the cooling platform 100. In this embodiment, the predefined distance allows for interconnection between the angled segments 120 of the composition 110A (including pressure portions 110B as seen in FIG. 6 and FIG. 7). In this embodiment, the interconnection would apply to those angled segments 120 within the perimeter of the temperature regulation layer 110, as the perimeter is sealed.

The cooling platform 100 is adapted to provide cooling to a wide variety of objects. As used herein, the term “object” can mean a variety of things including but not limited to domestic animals, such as cats and dogs. The use of the cooling platform 100 can extend to human use in vehicles or similar circumstances calling for such regulation. Generally, the cooling platform 100 can be used for anything that needs or requires either heat, cool or temperature regulation.

FIG. 3 and FIG. 4 illustrate a cross-section of the cooling platform 100, which includes the support layer 140. The support layer 140 is substantially bonded to the bottom side of the temperature regulation layer 110. The support layer 140 comprised of material sufficiently pliable to deform and sufficiently rigid to withstand collapse in response to the weight of the object.

In an embodiment, the support layer 140 can be made from polyurethane foam, elastomer foam, memory foam, or other suitable material. In another embodiment, the support layer 140 is made of an orthopedic foam, of a consistency designed to protect joints and provide appropriate support to the skeletal system.

In an embodiment, the support layer 140 can include soft, pliable, and removable stuffing material to provide cushioning, allowing a user to establish the firmness or softness desired. Such material can include synthetic pillow stuffing such as polyester filling, or can include feathers such as goose

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or duck down. As a further embodiment, the support layer **140** can include a combination of dense foam and softer pillow stuffing. It is contemplated that different types of cushioning can be utilized for different types, sizes, and weight of objects.

FIG. **3** and FIG. **4** further illustrate the composition **110A** within the temperature regulation layer **110**. The composition **110A** serves to control the temperature of the cooling platform **100**. The cooling platform **100** can handle a range of different temperatures depending on the object in use. This can mean that the composition **110A** can encompass a variety of cooling and heating compounds.

In an embodiment, the composition **110A** can be activated by a wide variety of means, e.g. the addition of water. In this embodiment, the composition **110A** can include ammonium nitrate and distilled water.

In another embodiment, the composition **110A** can be activated by pressure, wherein the pressure of a object sitting on the cooling platform **100** activates the composition **110A**, triggering an endothermic process and subsequent cooling. Upon the release of that pressure, the composition **110A** undergoes a subsequent recharge, essentially the reverse of the initial reaction. The above is consistent with Le Chatelier's principle, in that, the reaction reverses upon the application or absence of pressure. In this embodiment, the composition **110A** is comprised of: thirty percent carboxymethyl cellulose; twenty percent water; thirty-five percent polyacrylamide; and at least fifteen percent alginic acid. The aforementioned composition **110A** also provides a cooling effect for an increased duration over other known compositions.

FIG. **5** illustrates a cross-section of the channeled covering layer **150**. The channeled covering layer **150** can encompass both the support **140** and temperature regulation layers **110**. The channeled covering layer **150** can comprise a piece of fabric or netting, which can include, but is not limited to, plastic, nylon or cloth netting, or a micro-fiber material with a waterproof layer.

The fabric or netting can allow circulated air to penetrate and escape to the surface, effectuating the cooling process. The fabric or netting can be air tight or resistant to air penetration, to provide indirect cooling. In another embodiment, the channeled covering layer **150** can be made of a firm material, such as plastic, which retains its shape when sat upon by an object. Additionally, the channeled covering layer **150** can include padding to provide a comfortable seating surface.

In an embodiment, the channeled covering layer **150** can be easily removed via a bottom and/or zipper or any other similar means attached thereto. The channeled covering layer **150** can be made of material such that it can be easily replaced with a different top portion made of another material (and/or having different thickness) as desired. Further, in an embodiment, the channeled covering layer **150** can contain antibacterial, stain resistant, chew resistant, and/or anti flea materials.

FIG. **6** and FIG. **7** illustrate an alternative embodiment of the invention. In this embodiment, the temperature regulation layer **110** includes a pressure portion **110B**. The pressure portion **110B** allows for the ability to increase or decrease the firmness of the temperature regulation layer **110** and thus the cooling platform **100** by the addition of gases such as oxygen. This feature can be predetermined or varied as set forth below.

In an embodiment, the pressure portion **110B** can include a means for inflating or deflating **115** the pressure portion **110B** and the temperature regulation layer **110**. The means for inflating and deflating **115** can include a variety of structures designed for air intake and out take. Often, the structures

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involved in such means include a protruding valve stem and a cap. The valve stem can be connected or coupled with a threaded portion for attachment to a mechanical or electrical pump, or can be comprised of a plastic valve allowing for human pressure inflation.

In an embodiment, the means for inflating or deflating can interconnect the pressure portions **110B** held within the plurality of angled segments **120**. In another embodiment, each pressure portion **110B** can be provided for individually within each angled segment **120** at either a fixed pressure or established using the above mentioned interconnected means.

FIG. **8** and FIG. **9** illustrate an alternative embodiment of the invention. In this embodiment, the temperature regulation layer **110** is adapted to hold a composition **110A** in a single angled segment **120**. Therefore, the temperature regulation layer **110** becomes the single angled segment **120**. The perimeter of the angled segment **120**, which includes a top side and a bottom side, is sealed preventing the composition **110A** from leaking.

FIGS. **10** and **11** illustrate another alternative embodiment of the invention. In this particular embodiment, the temperature regulation layer **110/120** is adapted to hold the composition **110A**. In this embodiment, the temperature regulation layer **110/120** has an angled segment **120** formed as described herein. However, this embodiment does not include the channeled covering layer **150** as well as support layer **140**.

FIGS. **12** and **13** illustrate another embodiment of the invention. In this embodiment, the temperature regulation layer **110** adapted to hold the composition **110A**, has a plurality of angled segments **120**. And as already described herein, the angled segments **120** are formed by a top side and a bottom side at a predefined distance, and by channels **130**. In an embodiment, the channels **130** may completely segment the plurality of angled segments **120**.

As mentioned in conjunction with the channeled covering layer **150**, the temperature regulation layer **110** may be comprised of similar materials making up the channeled covering layer **150**. The temperature regulation layer **110**, in an embodiment, may also be plastic or of similar material, and in another embodiment be such that the composition **110A** is viewable through clear material.

In use, the cooling platform **100** is able to regulate the temperate of an object. The object contacts the channeled covering layer **150** exerting pressure over the cooling platform **100**. The support layer **140** is designed to be sufficiently pliable to deform and sufficiently rigid to withstand collapse in response to the weight of the object. As stated herein, the support layer **140** can be comprised of a wide variety of components.

Depending on the composition **110A** used, the temperature regulation layer **110** transfers heat from the object. In further effectuating heat transfer, the channels **130** have at least two advantages. First, the channels **130** are designed to mix air with the cooling process between the object and the channeled covering layer **150**. Second, the channels **130** substantially prevent or minimize the composition **110A** from being pushed out of the angled segment **120**. Obviously, in other embodiments presented herein, the angled segments **120** can be completely segmented, fully preventing such an issue. The channeled covering layer **150** also aids in effectuating heat transfer from the object by its composition of channels. Of course, the degree of such aid depends in large part on the type of material used with the cooling platform **100**.

In adjusting to accommodate the object, the pressure portions **110B** are used. As stated above, the pressure portions **110B** can be individual and predetermined or variable and interconnected. Thus, the interconnected pressure portions

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110B can be varied through the means for inflating and deflating 115. Also, as stated herein, the channeled covering layer 150 can provide a degree of comfort and firmness depending on the material used, lending to the overall versatility of the cooling platform 100.

The invention contains a large amount of advantages. An advantage of the invention is the composition 110A. The composition 110A is able to be re-used without the need for electricity, refrigeration, additional treatments, or extraneous equipment. The advantage stems from the components within the composition 110A, which effectively keep a temperature of 3-4 degrees Fahrenheit lower than body temperature. This particular composition 110A is able to recharge after the alleviation of pressure (after the object moves). This particular advantage further allows for low-cost and eco-friendly solutions to temperature regulating and aids in the "mobility" aspect of the invention by not requiring input from other sources and by virtue of being a non-toxic substance.

Another advantage of the invention is the unique design. The design enhances and optimizes the cooling performance. The channels 130 allow for a mixture of air flow between the object and the cooling platform 100, effectively cooling the object at a quicker rate. Furthermore, the presence of the predefined distance from the top and bottom of the angled segment 120, essentially prevents the dispersion of the composition 110A from the pressure the object exerts on the cooling platform 100. The overall effect increases the rate of cooling on the targeted object.

Another advantage of the invention is the interconnected pressure portions 110B. The pressure portions 110B provide the ability to increase or decrease the overall pressure of the cooling platform 100. This feature is particularly advantageous given the large variation in object weight.

While certain exemplary embodiments have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative and not restrictive of the current invention, and that this invention is not restricted to the specific constructions and arrangements shown and described since modification can occur to those ordinarily skilled in the art.

What is claimed:

1. A cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance less than the predefined distance;

a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively;

a support layer substantially bonded to the bottom side of the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding collapse; and

a channeled covering layer encompassing the support and temperature regulation layers.

2. The cooling platform of claim 1 wherein the plurality of angled segments include a pressure portion.

3. The cooling platform of claim 2 wherein the pressure portions are interconnected.

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4. The cooling platform of claim 3 wherein the pressure portions include a means for inflating and deflating.

5. The cooling platform of claim 4 wherein the pressure activated recharging cooling composition is comprised of:

thirty percent carboxymethyl cellulose;
twenty percent water;
thirty-five percent polyacrylamide; and
fifteen percent alginic acid.

6. The cooling platform of claim 1 wherein the support layer is comprised of memory foam.

7. The cooling platform of claim 1 wherein the channeled covering layer comprises a piece of fabric or net covering.

8. The cooling platform of claim 1 wherein the angled segments within the sealed perimeter are sealed.

9. A cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side;

a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively;

a support layer substantially bonded to the bottom side of the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding collapse; and

a channeled covering layer encompassing the support and temperature regulation layers.

10. The cooling platform of claim 9 wherein the pressure activated recharging cooling composition is comprised of:

thirty percent carboxymethyl cellulose;
twenty percent water;
thirty-five percent polyacrylamide; and
fifteen percent alginic acid.

11. The cooling platform of claim 9 wherein the temperature regulation layer includes a pressure portion within the angled segment.

12. The cooling platform of claim 11 wherein the pressure portion include a means for inflating and deflating.

13. A cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side; and

a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively, wherein the composition is within the temperature regulation layer comprised of thirty percent carboxymethyl cellulose; twenty percent water; thirty-five percent polyacrylamide; and fifteen percent alginic acid.

14. A cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by con-

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tacting the top side with the bottom side at a distance lesser than the predefined distance; and
 a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively, wherein the composition is within the temperature regulation layer comprised of thirty percent carboxmethyl cellulose; twenty percent water; thirty-five percent polyacrylamide; and fifteen percent alginic acid.

15. A cooling platform for cooling an object, the platform comprising:
 a temperature regulation layer, the temperature regulation layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side; and
 a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively.

16. A cooling platform for cooling an object, the platform comprising:
 a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance; and
 a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively.

17. A cooling platform for cooling an object, the platform comprising:
 a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance;
 a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively, the pressure activated recharging cooling composition comprised of water and polyacrylamide;
 a support layer substantially bonded to the bottom side of the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding collapse; and

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a channeled covering layer encompassing the support and temperature regulation layers.

18. A cooling platform for cooling an object, the platform comprising:
 a temperature regulation layer, the temperature regulation layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side; and
 a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively, the pressure activated recharging cooling composition comprised of water and polyacrylamide.

19. A cooling platform for cooling an object, the platform comprising:
 a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance; and
 a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively, the pressure activated recharging cooling composition comprised of water and polyacrylamide.

20. A method of manufacturing a cooling platform for cooling an object, the method comprising the steps of:
 providing a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance;
 providing a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and endothermically deactivated upon the application and release of pressure, respectively;
 providing a support layer substantially bonded to the bottom side of the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding collapse; and
 providing a channeled covering layer encompassing the support and temperature regulation layers.

* * * * *

EXHIBIT “2”

US009226474B2

(12) **United States Patent**
Prendergast(10) **Patent No.:** **US 9,226,474 B2**(45) **Date of Patent:** ***Jan. 5, 2016**(54) **PRESSURE ACTIVATED RECHARGING COOLING PLATFORM**(71) Applicant: **THE GREEN PET SHOP ENTERPRISES, LLC**, Deerfield, IL (US)(72) Inventor: **Gerard Prendergast**, Chicago, IL (US)(73) Assignee: **THE GREEN PET SHOP ENTERPRISES, LLC**, Deerfield, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/226,393**(22) Filed: **Mar. 26, 2014**(65) **Prior Publication Data**

US 2014/0216091 A1 Aug. 7, 2014

Related U.S. Application Data

(63) Continuation of application No. 12/760,045, filed on Apr. 14, 2010, now Pat. No. 8,720,218.

(51) **Int. Cl.****F25D 23/12** (2006.01)**F25D 3/08** (2006.01)**F25D 3/10** (2006.01)**A01K 1/015** (2006.01)**A01K 1/035** (2006.01)**F25D 3/02** (2006.01)(52) **U.S. Cl.**CPC **A01K 1/0158** (2013.01); **A01K 1/0353** (2013.01); **F25D 3/02** (2013.01); **F25D 2303/08** (2013.01); **F25D 2303/085** (2013.01)(58) **Field of Classification Search**

CPC A01K 1/0158; A01K 1/0353; F25D 3/02; F25D 2303/08; F25D 2303/085

USPC 62/259.3, 457.2, 529
See application file for complete search history.(56) **References Cited**

U.S. PATENT DOCUMENTS

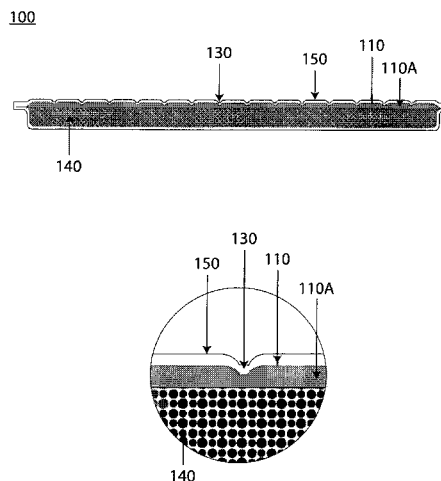
4,064,835 A * 12/1977 Rabenbauer 119/28.5
6,132,455 A 10/2000 Shang
6,210,427 B1 * 4/2001 Augustine et al. 607/96

(Continued)

FOREIGN PATENT DOCUMENTS

CN 1493644 A 5/2004
CN 201452402 U 5/2010*Primary Examiner* — Allen Flanigan*Assistant Examiner* — Filip Zec(74) *Attorney, Agent, or Firm* — Gordon Rees Scully Mansukhani LLP; Reid F. Dammann(57) **ABSTRACT**

A pressure activated recharging cooling platform for cooling an object is provided. The cooling platform comprises a temperature regulation layer, a support layer, and a channeled covering layer. The temperature regulation layer is adapted to hold a composition. The temperature regulation layer has a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance. The support layer is substantially bonded to the bottom side of the temperature regulation layer and is comprised of material sufficiently pliable to deform and sufficiently rigid to withstand collapse in response to the weight of the object. The channeled covering layer encompasses the support and temperature regulation layers.

21 Claims, 7 Drawing Sheets

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(56)

References Cited

U.S. PATENT DOCUMENTS

8,381,495 B2 2/2013 Fan
2010/0009128 A1 1/2010 Fan

7,036,162 B1 * 5/2006 Gatten 5/421 * cited by examiner

U.S. Patent

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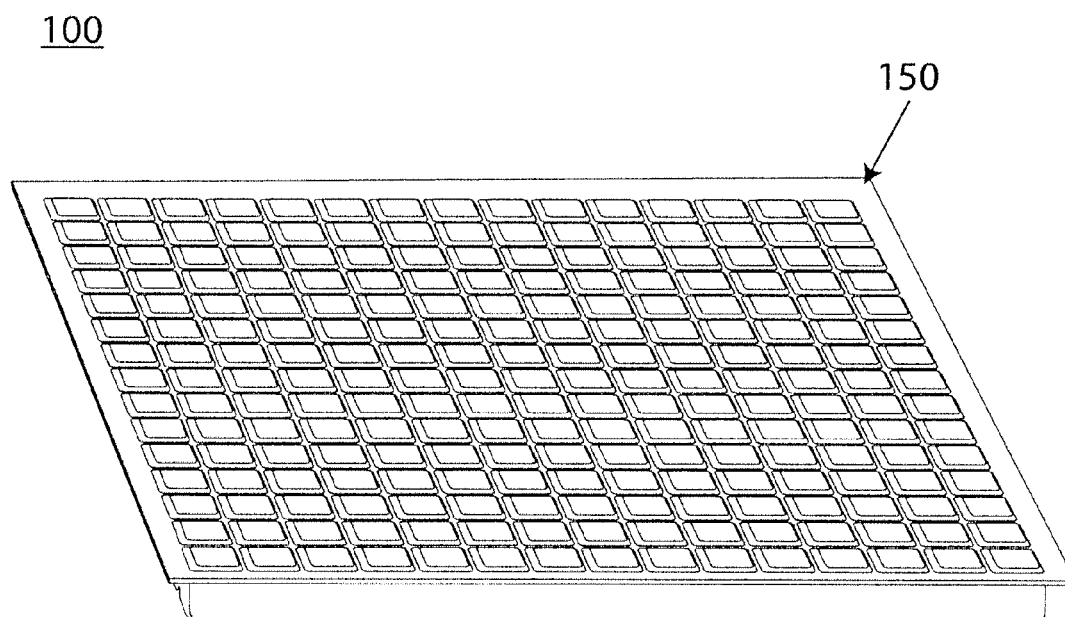


Fig. 1

110

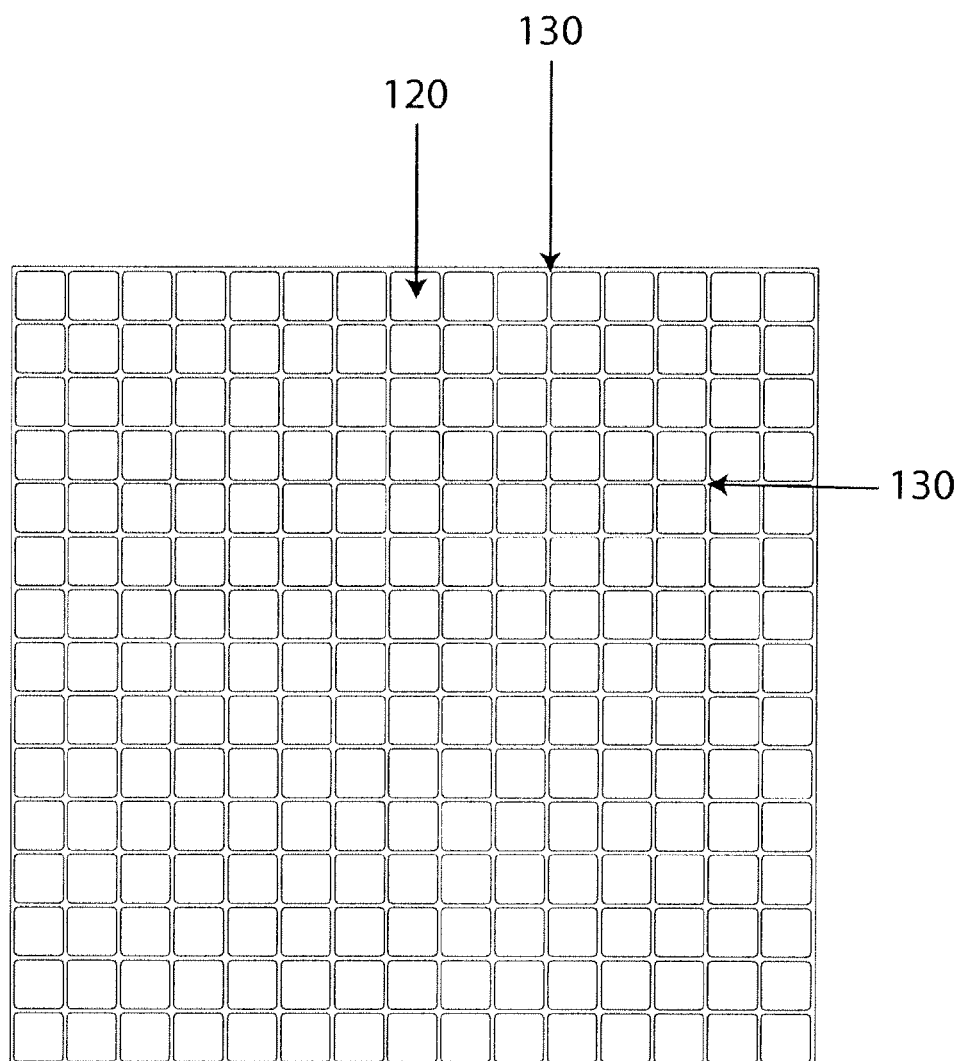


Fig. 2

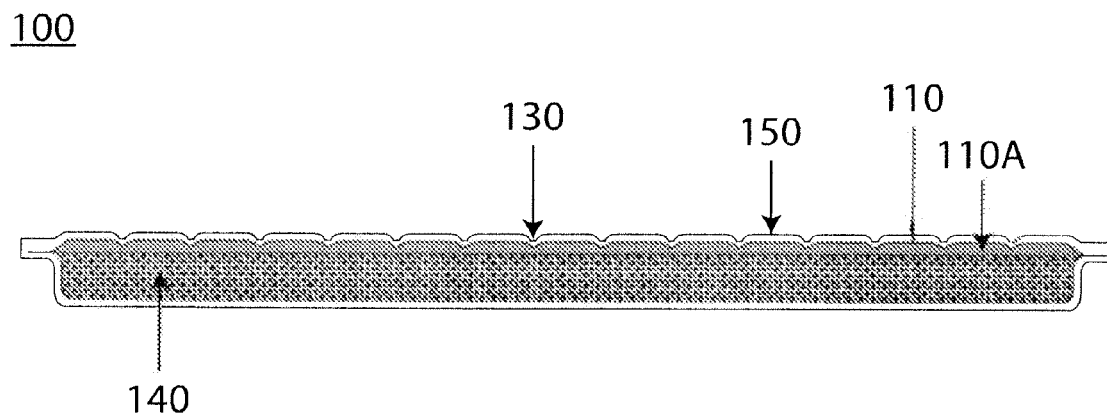


Fig. 3

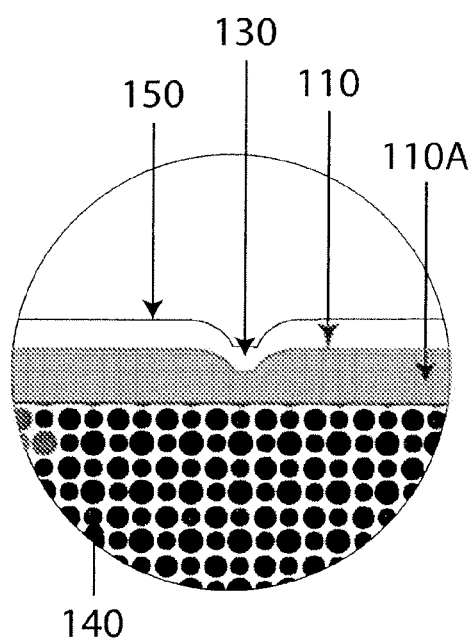


Fig. 4

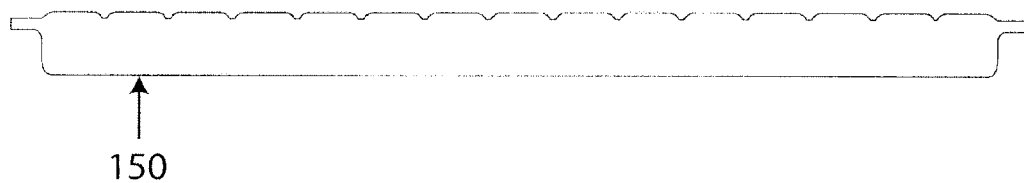


Fig. 5

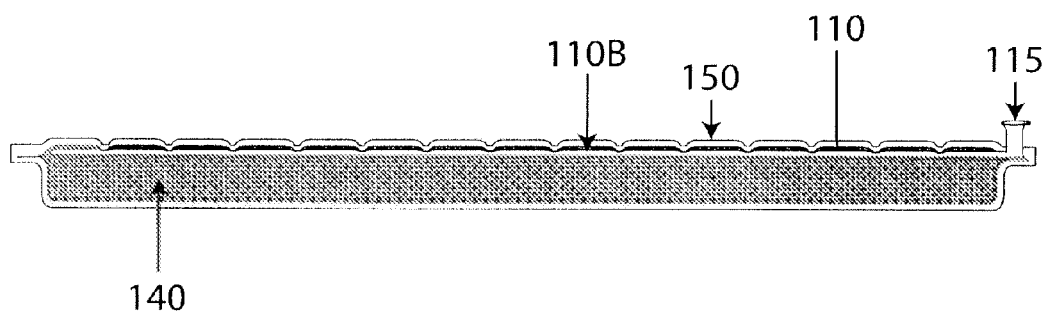


Fig. 6

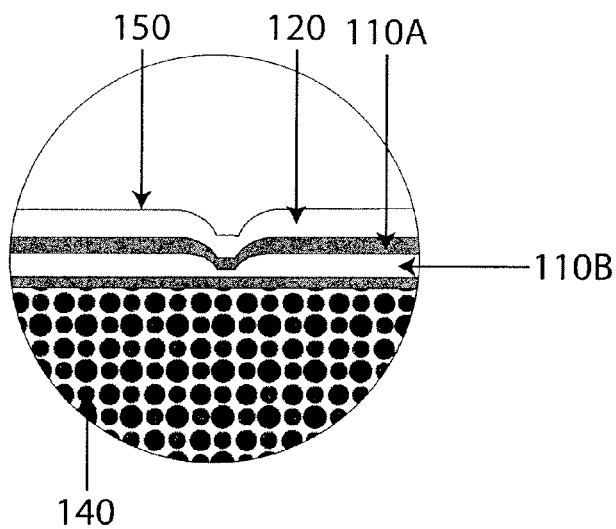


Fig. 7

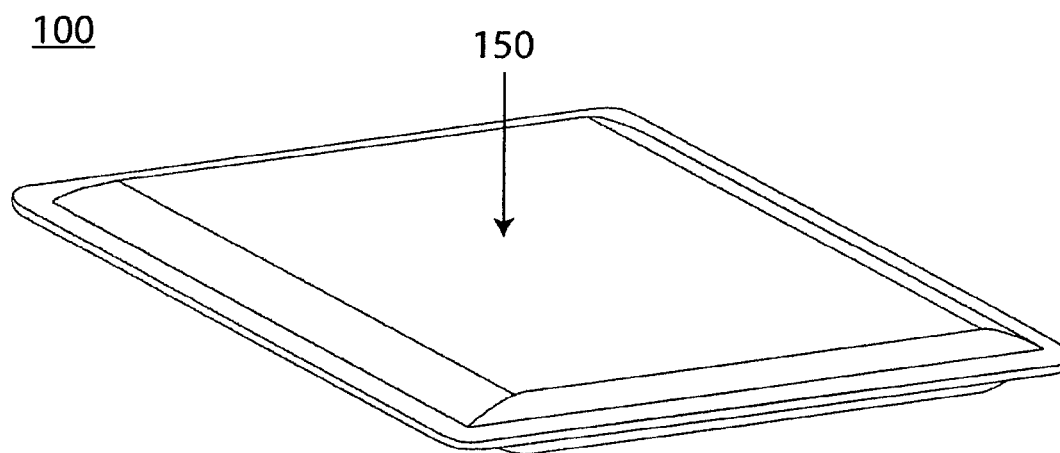


Fig. 8

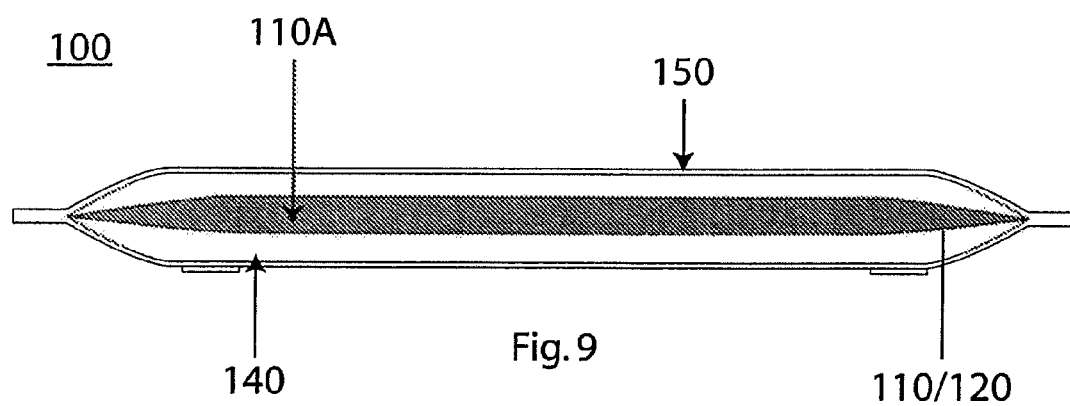


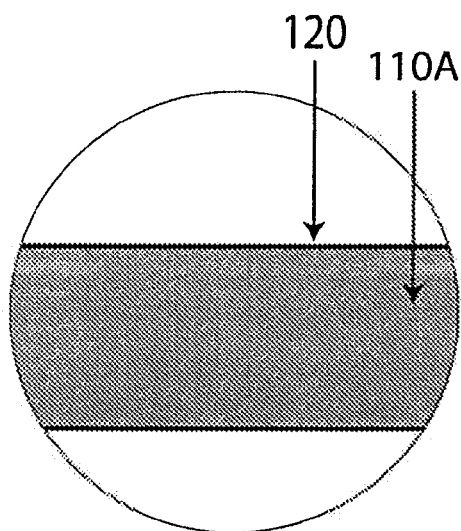
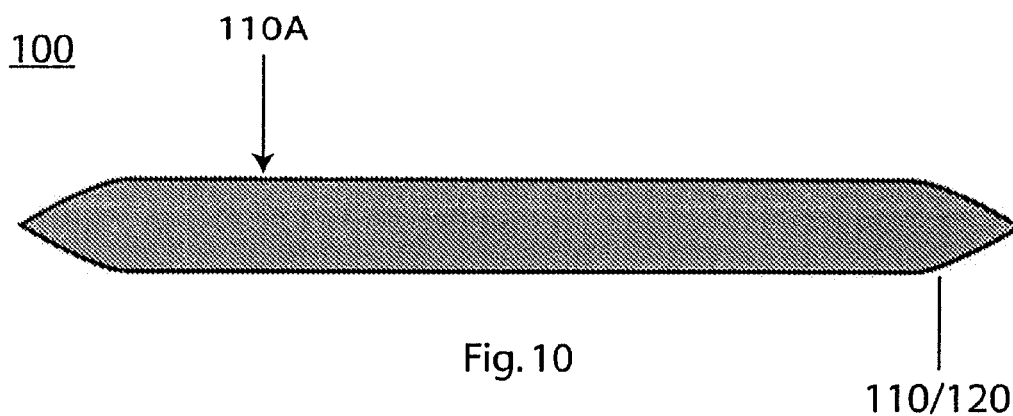
Fig. 9

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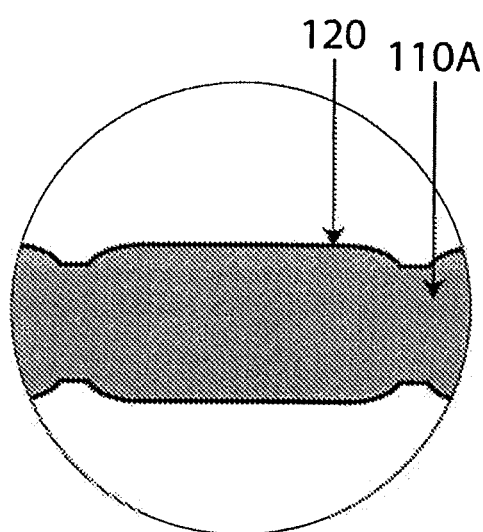
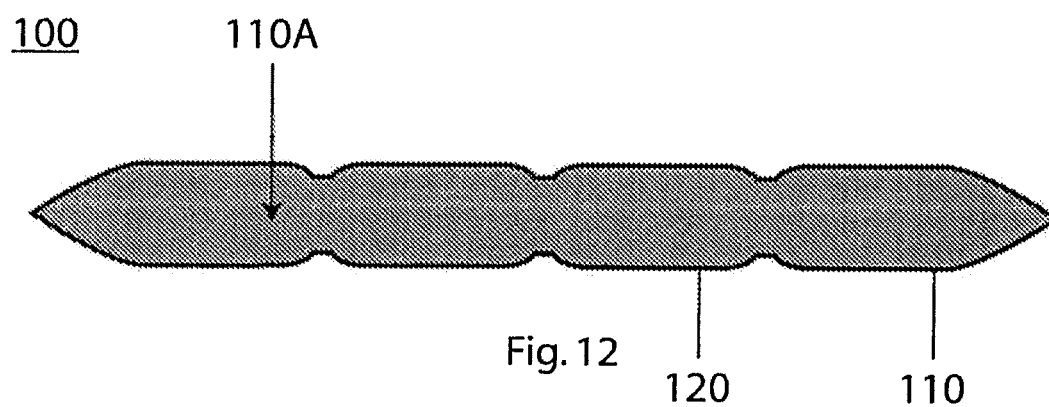


Fig. 13

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**PRESSURE ACTIVATED RECHARGING
COOLING PLATFORM****CROSS-REFERENCE TO RELATED
APPLICATIONS**

This United States Non-Provisional Patent Application is a continuation of U.S. application Ser. No. 12/760,045 entitled "Pressure Activated Recharging Cooling Platform," filed on Apr. 14, 2010, claiming priority under 35 U.S.C. §120, the disclosure of which is hereby incorporated by reference in its entirety as if fully set forth within.

BACKGROUND**1) Field of the Invention**

The invention relates to temperature controlled platforms, particularly, cooling platforms for animals.

2) Discussion of the Related Art

Pet beds serve as a place to rest or sleep, for pets such as cats and dogs. Many times, depending on the application, these pet beds are directed towards cooling or heating pets. These beds can be used during post-surgery recovery, dysplasia, or post-chemotherapy. Generally, these pet beds aid in the comfort and safety of the pet.

Many pet beds are known to have cooling mechanisms. Some pet beds provide a centralized cooling plate with no mechanism to circulate. These pet beds are electrically connected to a power source. Power sources often times fail, negating the "portable" aspect of a product. Further, such systems require heavy and complex equipment, and are not typically portable or user friendly.

There are other pet beds available which use alternative or "non-electric" means to cool a pet. These pet beds generally use ice packs. However, these ice packs eventually melt and need to be replaced. Accordingly, it is desirable to provide an improved cooling bed for pets.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described by way of example with reference to the accompanying drawings wherein:

FIG. 1 illustrates a top angled perspective of a cooling platform.

FIG. 2 illustrates a top view of a temperature regulation layer of the cooling platform.

FIG. 3 illustrates a cross-sectional view of the cooling platform.

FIG. 4 illustrates a detailed cross-sectional view of the cooling platform.

FIG. 5 illustrates a cross-sectional view of a channeled covering layer of the cooling platform.

FIG. 6 illustrates a detailed cross-sectional view of an alternative embodiment of the cooling platform.

FIG. 7 illustrates a detailed cross-sectional view of the alternative embodiment of the cooling platform.

FIG. 8 illustrates a top angled perspective of an alternative embodiment of the cooling platform.

FIG. 9 illustrates a cross-sectional perspective of the alternative embodiment of the cooling platform.

FIG. 10 illustrates a cross-sectional perspective of an alternative embodiment of the cooling platform.

FIG. 11 illustrates a detailed cross-sectional view of the alternative embodiment of the cooling platform.

FIG. 12 illustrates a cross-sectional perspective of an alternative embodiment of the cooling platform.

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FIG. 13 illustrates a detailed cross-sectional view of the alternative embodiment of the cooling platform.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is now described with reference to figures where like reference numbers indicate identical or functionally similar elements. While specific configurations and arrangements are discussed, it should be understood that this is done for illustrative purposes only. A person skilled in the relevant art will recognize that other configurations and arrangements can be used without departing from the spirit and scope of the invention.

The invention described herein is multilayered. Each layer, in an embodiment, is bonded to the next layer in some fashion, in that, each layer is comprised of a first and a second side and is bonded to the respective side accordingly. As such, the term "bonded" refers to the joining, adhering, affixing, connecting, attaching, threading or the like, through chemical, mechanical or electrical avenues, of at least two elements of a cooling platform, such that the elements tend to be and remain bonded during normal use conditions of the cooling platform.

FIG. 1 illustrates a cooling platform 100. The cooling platform 100 is comprised of a temperature regulation layer 110 (illustrated in FIG. 2), a f 140 (illustrated in FIG. 3), and a channeled covering layer 150.

FIG. 2 illustrates the temperature regulation layer 110 in more detail. The temperature regulation layer 110 is adapted to hold a composition 110A (illustrated in FIG. 3) and provides temperature regulation to the cooling platform 100. The temperature regulation layer 110 has an angled segment 120, which includes a top side and a bottom side (illustrated FIG. 8 and FIG. 9). The angled segment 120 is formed by channels 130 and includes a sealed perimeter.

In an embodiment, and as illustrated in FIG. 2, the temperature regulation layer 110 includes a plurality of angled segments 120 formed by a plurality of channels 130. The channels 130 effectively space the top and bottom sides of each angled segment 120 at a predefined distance. In an embodiment, the predefined distance can equal zero, thus completely forming each angled segment 120 and cutting off any interconnection or communication therein.

In another embodiment, that predefined distance can be measured depending on the object using the cooling platform 100. In this embodiment, the predefined distance allows for interconnection between the angled segments 120 of the composition 110A (including pressure portions 110B as seen in FIG. 6 and FIG. 7). In this embodiment, the interconnection would apply to those angled segments 120 within the perimeter of the temperature regulation layer 110, as the perimeter is sealed.

The cooling platform 100 is adapted to provide cooling to a wide variety of objects. As used herein, the term "object" can mean a variety of things including but not limited to domestic animals, such as cats and dogs. The use of the cooling platform 100 can extend to human use in vehicles or similar circumstances calling for such regulation. Generally, the cooling platform 100 can be used for anything that needs or requires either heat, cool or temperature regulation.

FIG. 3 and FIG. 4 illustrate a cross-section of the cooling platform 100, which includes the support layer 140. The support layer 140 is substantially bonded to the bottom side of the temperature regulation layer 110. The support layer 140 comprised of material sufficiently pliable to deform and sufficiently rigid to withstand collapse in response to the weight of the object.

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In an embodiment, the support layer **140** can be made from polyurethane foam, elastomer foam, memory foam, or other suitable material. In another embodiment, the support layer **140** is made of an orthopedic foam, of a consistency designed to protect joints and provide appropriate support to the skeletal system.

In an embodiment, the support layer **140** can include soft, pliable, and removable stuffing material to provide cushioning, allowing a user to establish the firmness or softness desired. Such material can include synthetic pillow stuffing such as polyester filling, or can include feathers such as goose or duck down. As a further embodiment, the support layer **140** can include a combination of dense foam and softer pillow stuffing. It is contemplated that different types of cushioning can be utilized for different types, sizes, and weight of objects.

FIG. 3 and FIG. 4 further illustrate the composition **110A** within the temperature regulation layer **110**. The composition **110A** serves to control the temperature of the cooling platform **100**. The cooling platform **100** can handle a range of different temperatures depending on the object in use. This can mean that the composition **110A** can encompass a variety of cooling and heating compounds.

In an embodiment, the composition **110A** can be activated by a wide variety of means, e.g. the addition of water. In this embodiment, the composition **110A** can include ammonium nitrate and distilled water.

In another embodiment, the composition **110A** can be activated by pressure, wherein the pressure of a object sitting on the cooling platform **100** activates the composition **110A**, triggering an endothermic process and subsequent cooling. Upon the release of that pressure, the composition **110A** undergoes a subsequent recharge, essentially the reverse of the initial reaction. The above is consistent with Le Chatelier's principle, in that, the reaction reverses upon the application or absence of pressure. In this embodiment, the composition **110A** is comprised of: thirty percent carboxymethyl cellulose; twenty percent water; thirty-five percent polyacrylamide; and at least fifteen percent alginic acid. The aforementioned composition **110A** also provides a cooling effect for an increased duration over other known compositions.

FIG. 5 illustrates a cross-section of the channeled covering layer **150**. The channeled covering layer **150** can encompass both the support **140** and temperature regulation layers **110**. The channeled covering layer **150** can comprise a piece of fabric or netting, which can include, but is not limited to, plastic, nylon or cloth netting, or a micro-fiber material with a waterproof layer.

The fabric or netting can allow circulated air to penetrate and escape to the surface, effectuating the cooling process. The fabric or netting can be air tight or resistant to air penetration, to provide indirect cooling. In another embodiment, the channeled covering layer **150** can be made of a firm material, such as plastic, which retains its shape when sat upon by an object. Additionally, the channeled covering layer **150** can include padding to provide a comfortable seating surface.

In an embodiment, the channeled covering layer **150** can be easily removed via a bottom and/or zipper or any other similar means attached thereto. The channeled covering layer **150** can be made of material such that it can be easily replaced with a different top portion made of another material (and/or having different thickness) as desired. Further, in an embodiment, the channeled covering layer **150** can contain antibacterial, stain resistant, chew resistant, and/or anti flea materials.

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FIG. 6 and FIG. 7 illustrate an alternative embodiment of the invention. In this embodiment, the temperature regulation layer **110** includes a pressure portion **110B**. The pressure portion **110B** allows for the ability to increase or decrease the firmness of the temperature regulation layer **110** and thus the cooling platform **100** by the addition of gases such as oxygen. This feature can be predetermined or varied as set forth below.

In an embodiment, the pressure portion **110B** can include a means for inflating or deflating **115** the pressure portion **110B** and the temperature regulation layer **110**. The means for inflating and deflating **115** can include a variety of structures designed for air intake and out take. Often, the structures involved in such means include a protruding valve stem and a cap. The valve stem can be connected or coupled with a threaded portion for attachment to a mechanical or electrical pump, or can be comprised of a plastic valve allowing for human pressure inflation.

In an embodiment, the means for inflating or deflating can interconnect the pressure portions **110B** held within the plurality of angled segments **120**. In another embodiment, each pressure portion **110B** can be provided for individually within each angled segment **120** at either a fixed pressure or established using the above mentioned interconnected means.

FIG. 8 and FIG. 9 illustrate an alternative embodiment of the invention. In this embodiment, the temperature regulation layer **110** is adapted to hold a composition **110A** in a single angled segment **120**. Therefore, the temperature regulation layer **110** becomes the single angled segment **120**. The perimeter of the angled segment **120**, which includes a top side and a bottom side, is sealed preventing the composition **110A** from leaking.

FIGS. 10 and 11 illustrate another alternative embodiment of the invention. In this particular embodiment, the temperature regulation layer **110/120** is adapted to hold the composition **110A**. In this embodiment, the temperature regulation layer **110/120** has an angled segment **120** formed as described herein. However, this embodiment does not include the channeled covering layer **150** as well as support layer **140**.

FIGS. 12 and 13 illustrate another embodiment of the invention. In this embodiment, the temperature regulation layer **110** adapted to hold the composition **110A**, has a plurality of angled segments **120**. And as already described herein, the angled segments **120** are formed by a top side and a bottom side at a predefined distance, and by channels **130**. In an embodiment, the channels **130** may completely segment the plurality of angled segments **120**.

As mentioned in conjunction with the channeled covering layer **150**, the temperature regulation layer **110** may be comprised of similar materials making up the channeled covering layer **150**. The temperature regulation layer **110**, in an embodiment, may also be plastic or of similar material, and in another embodiment be such that the composition **110A** is viewable through clear material.

In use, the cooling platform **100** is able to regulate the temperate of an object. The object contacts the channeled covering layer **150** exerting pressure over the cooling platform **100**. The support layer **140** is designed to be sufficiently pliable to deform and sufficiently rigid to withstand collapse in response to the weight of the object. As stated herein, the support layer **140** can be comprised of a wide variety of components.

Depending on the composition **110A** used, the temperature regulation layer **110** transfers heat from the object. In further effectuating heat transfer, the channels **130** have at least two advantages. First, the channels **130** are designed to mix air with the cooling process between the object and the channeled covering layer **150**. Second, the channels **130** substan-

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tially prevent or minimize the composition 110A from being pushed out of the angled segment 120. Obviously, in other embodiments presented herein, the angled segments 120 can be completely segmented, fully preventing such an issue. The channeled covering layer 150 also aids in effectuating heat transfer from the object by its composition of channels. Of course, the degree of such aid depends in large part on the type of material used with the cooling platform 100.

In adjusting to accommodate the object, the pressure portions 110B are used. As stated above, the pressure portions 110B can be individual and predetermined or variable and interconnected. Thus, the interconnected pressure portions 110B can be varied through the means for inflating and deflating 115. Also, as stated herein, the channeled covering layer 150 can provide a degree of comfort and firmness depending on the material used, lending to the overall versatility of the cooling platform 100.

The invention contains a large amount of advantages. An advantage of the invention is the composition 110A. The composition 110A is able to be re-used without the need for electricity, refrigeration, additional treatments, or extraneous equipment. The advantage stems from the components within the composition 110A, which effectively keep a temperature of 3-4 degrees Fahrenheit lower than body temperature. This particular composition 110A is able to recharge after the alleviation of pressure (after the object moves). This particular advantage further allows for low-cost and eco-friendly solutions to temperature regulating and aids in the "mobility" aspect of the invention by not requiring input from other sources and by virtue of being a non-toxic substance.

Another advantage of the invention is the unique design. The design enhances and optimizes the cooling performance. The channels 130 allow for a mixture of air flow between the object and the cooling platform 100, effectively cooling the object at a quicker rate. Furthermore, the presence of the predefined distance from the top and bottom of the angled segment 120, essentially prevents the dispersion of the composition 110A from the pressure the object exerts on the cooling platform 100. The overall effect increases the rate of cooling on the targeted object.

Another advantage of the invention is the interconnected pressure portions 110B. The pressure portions 110B provide the ability to increase or decrease the overall pressure of the cooling platform 100. This feature is particularly advantageous given the large variation in object weight.

While certain exemplary embodiments have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative and not restrictive of the current invention, and that this invention is not restricted to the specific constructions and arrangements shown and described since modification can occur to those ordinarily skilled in the art.

What is claimed:

1. A pressure activated recharging cooling platform for cooling an object, the platform comprising:
 - a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance;
 - a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically acti-

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vated and deactivated upon the application and release of pressure, respectively; and

a support layer within the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the pressure activating cooling composition is absorbed within the support layer.

2. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of:

- thirty percent carboxymethyl cellulose;
- twenty percent water;
- thirty-five percent polyacrylamide; and
- fifteen percent alginic acid.

3. The pressure activated recharging cooling platform of claim 1 wherein the support layer is comprised of memory foam.

4. The pressure activated recharging cooling platform of claim 1 wherein the angled segments within the sealed perimeter are sealed.

5. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of at least one of carboxymethyl cellulose; water; polyacrylamide; and alginic acid.

6. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of ammonium nitrate and water.

7. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of water and at least one of carboxymethyl cellulose;

polyacrylamide; and alginic acid.

8. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of water and polyacrylamide.

9. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of water and sodium polyacrylate.

10. The pressure activated recharging cooling platform of claim 1 wherein the pressure activated recharging cooling composition is comprised of water and sodium polyacrylic acid.

11. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side;

a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively; and

a support layer within the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the pressure activating cooling composition is absorbed within the support layer.

12. The pressure activated recharging cooling platform of claim 11 wherein the pressure activated recharging cooling composition is comprised of:

- thirty percent carboxymethyl cellulose;
- twenty percent water;
- thirty-five percent polyacrylamide; and
- fifteen percent alginic acid.

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13. The pressure activated recharging cooling platform of claim 11 wherein the support layer is comprised of memory foam.

14. The pressure activated recharging cooling platform of claim 11 wherein the pressure activated recharging cooling composition is comprised of at least one of carboxymethyl cellulose; water; polyacrylamide; and alginic acid.

15. The pressure activated recharging cooling platform of claim 11 wherein the pressure activated recharging cooling composition is comprised of ammonium nitrate and water.

16. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the temperature regulation layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance; and

a support layer within the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the support layer is capable of absorbing a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively.

17. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a temperature regulation layer, the temperature regulation layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side; and

a support layer within the temperature regulation layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the support layer is capable of absorbing a pressure activated recharging cooling composition within the temperature regulation layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively.

18. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a channeled covering layer, the channeled covering layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the channeled covering layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance;

a pressure activated recharging cooling composition within the channeled covering layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively; and

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a support layer within the channeled covering layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the pressure activating cooling composition is absorbed within the support layer.

19. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a channeled covering layer, the channeled covering layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side;

a pressure activated recharging cooling composition within the channeled covering layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively; and

a support layer within the channeled covering layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the pressure activating cooling composition is absorbed within the support layer.

20. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a channeled covering layer, the channeled covering layer having a plurality of angled segments, wherein angled segments within a sealed perimeter of the channeled covering layer are formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels substantially form sides by contacting the top side with the bottom side at a distance lesser than the predefined distance; and

a support layer within the channeled covering layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the support layer is capable of absorbing a pressure activated recharging cooling composition within the channeled covering layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively.

21. A pressure activated recharging cooling platform for cooling an object, the platform comprising:

a channeled covering layer, the channeled covering layer having an angled segment formed by a top side and a bottom side at a predefined distance, and channels, wherein the channels form sides by contacting the top side with the bottom side; and

a support layer within the channeled covering layer, the support layer comprised of an elastic material capable of deforming and withstanding wherein the support layer is capable of absorbing a pressure activated recharging cooling composition within the channeled covering layer, the pressure activated recharging cooling composition endothermically activated and deactivated upon the application and release of pressure, respectively.

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EXHIBIT “3”



COOLING MAT



Keep your pet cool and comfortable during the dog days of summer, or in any warm environment. The fabric-covered gel mat activates when your pet lies on it. The cooling gel absorbs your pet's body heat, providing a resting place that's cooler than the ambient temperature.

- Cools continuously for up to 3 hours
- No batteries, electricity, refrigeration, or water required
- Durable, puncture-resistant construction
- Great for travel
- Ideal for pet beds, crates, kennels
- Non-toxic and latex-free
- Wipes clean
- Automatically recharges itself after 15 - 20 minutes of non-use

Specifications: • 16 x 43 inches • Weight: 1.5 lbs. • Material: Polypropylene • Color: Blue	9
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